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Idaho National Engineering & Environmental Laboratory

IDAHO DEPARTMENT OF HEALTH AND WELFARE
DIVISION OF ENVIRONMENTAL QUALITY

Proposed Plan for

Waste Area Group 8 - Naval Reactors Facility

Idaho National Engineering and Environmental Laboratory

(*Editors Note:* Technical and administrative terms are used throughout this Proposed Plan. When these terms are first used, they are printed in ***bold italics***. Explanations of these terms, document references, and other helpful notes are provided in the margins.)

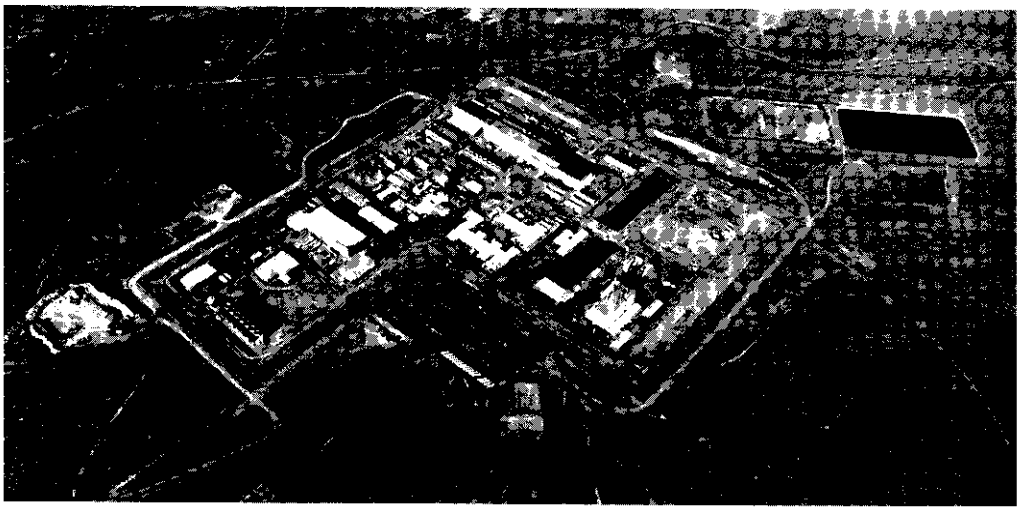

Figure 1. The Naval Reactors Facility.

Introduction

The purpose of this proposed plan is to summarize information and seek comments on ***remedial action alternatives*** for a comprehensive ***remedial investigation/feasibility study*** performed at the Naval Reactors Facility. The remedial investigation included four primary tasks: (1) the investigation of individual radiological sites that had not been previously evaluated under past investigations at the Naval Reactors Facility and the calculation of risks to human health based on the available or collected data; (2) a hydrogeologic study to assess potential impacts to groundwater; (3) a cumulative assessment of the risk to human health from all sources (radiological and chemical) at the Naval Reactors Facility; and (4) an ecological assessment that addresses the potential for impact of sources to ecological receptors. A remedial investigation of the Naval Reactors Facility radiological areas (Operable Unit 8-08) was performed because of known past discharges of water containing radiological constituents. Discharge of radioactive liquid from the Naval Reactors Facility to land impoundments or facilities was discontinued in 1979. The necessary information on how to participate in the public comment process is provided inside.

Inside This Plan

Public Meetings/ Briefings*

Boise
January 20, 1998
Borah High School Library

Moscow
January 21, 1998
University Inn

Idaho Falls
January 22, 1998
Shilo Inn

*** See page 26 for details.**

Briefings for other communities can be arranged by calling the INEEL's toll-free number at (800) 708-2680.

Remedial Action Alternatives - the options available for a site cleanup.

Remedial Investigation/Feasibility Study (RI/FS) - studies required by CERCLA (see below) to characterize the nature and extent of contamination because of past releases of hazardous and radioactive substances to the environment, to assess risks to human health and the environment from potential exposure to contaminants, and to evaluate cleanup actions.

Waste Area Group - one of the 10 administrative management areas established under the INEEL Federal Facility Agreement and Consent Order (FFA/CO). The Naval Reactors Facility is designated as Waste Area Group 8.

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) - a federal law that establishes a program to identify, evaluate, and remediate sites where hazardous substances may have been released, leaked, poured, spilled, or dumped into the environment.

How You Can Participate

Whether you are new to the INEEL and are reading this type of document for the first time, or you are familiar with the Superfund process, you are invited to:

- ***Read*** this proposed plan and review additional documents in the Administrative Record file at the Information Repository locations listed on page 19, and access documents via the internet at http://ar.inel.gov/home.html
- ***Call*** the INEEL's toll-free number at (800) 708-2680 to ask questions, request information, or make arrangements for a briefing
- ***Attend*** a public meeting listed on the cover and on page 26
- ***Comment*** on this plan at the meeting or submit written comments (see postage-paid comment form on back cover)
- ***Contact*** state of Idaho, EPA Region 10, or DOE project managers (see pages 6 and 7).

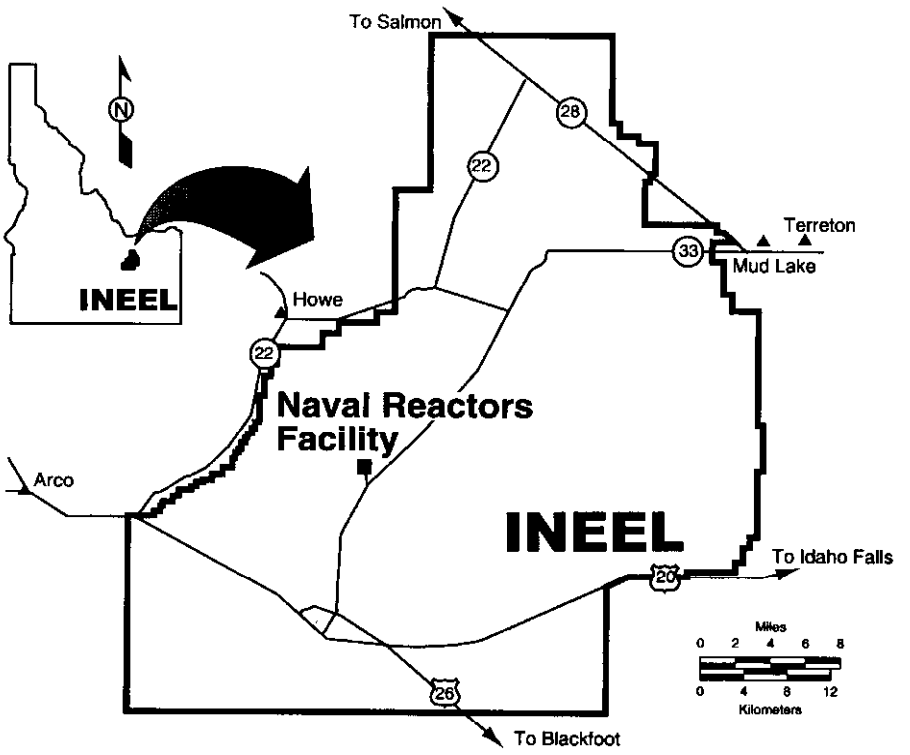

Figure 2. Location of the Naval Reactors Facility (Waste Area Group 8)

The Comprehensive RI/FS for ***Waste Area Group*** 8 represents the last extensive ***Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)*** investigation for the Naval Reactors Facility. Because this is a comprehensive investigation of an entire Waste Area Group, the assessment includes individual site investigations and an evaluation of the additive, or cumulative, effects of all the individual sites together. Many investigations conducted since 1991 have determined the nature and extent of contamination at potential and known release sites through historical document reviews, personnel interviews, and field data collection and analysis. Those sites not investigated during previous assessments were evaluated during this Comprehensive Remedial Investigation. The comprehensive investigation completed for the Naval Reactors Facility identified the types, estimated quantities, and locations of the contaminants and assessed the potential impact to human health and the environment from exposure to these contaminants. For those sites with a potential for adverse impacts, various ways of addressing the contamination were developed. This is known as the Feasibility Study and can be found in Volume 3 of the *Naval Reactors Facility Comprehensive Remedial Investigation/Feasibility Study for Waste Area Group 8.* This proposed plan summarizes the results of 6 years of data collection and analysis of release sites at the Naval Reactors Facility; previous United States Department of Energy (DOE) Naval Reactors Idaho Branch Office, Environmental Protection Agency (EPA), and the Idaho Department of Health and Welfare (IDHW) (hereinafter referred to as "the agencies") decisions based on the data collected; and the current recommendations based on the data and information compiled.

Information summarized in this plan can be found in greater detail in the Naval Reactors Facility Comprehensive Remedial Investigation/Feasibility Study for

Waste Area Group 8 report in the ***Administrative Record***. This and other documents are available for public review at the repositories listed on page 19 of this plan.

Administrative Record - documents including correspondence, public comments, Records of Decision, and technical reports upon which the agencies base their remedial action selection. The titles of additional information associated with this proposed plan that are available through the Administrative Record file are shown on page 18 of this plan.

Agency Involvement

This proposed plan is prepared in accordance with the public participation requirements identified under Section 117(a) of CERCLA, commonly called Superfund. In addition, the proposed plan provides the remedial action alternatives proposed by the agencies.

Community Acceptance

Community acceptance is one of the criteria the agencies must evaluate during the process of selecting a remedy. The only way the agencies have to gauge the degree of community acceptance is open dialogue with citizens concerning the result of the comprehensive investigation, and encourage citizens to participate by commenting on the proposed remedial actions given in this plan. This interaction is critical to the CERCLA process and to making sound environmental decisions. Although this plan identifies the agencies' proposed actions, the public is encouraged to review and comment on any of the alternatives, not just the preferred alternative.

The actual selection of a remedy cannot be made until the comments received during the public comment period have been reviewed and analyzed. When the results are known, the agencies will consider all public comments on this proposed plan in preparing the ***Record of Decision***. Depending on comments received, the final remedial action plan presented in the Record of Decision could be different than the preferred alternative. All written and oral comments will be summarized and responded to in the ***Responsiveness Summary*** section of the Record of Decision, which is scheduled to be completed by August 1998.

Record of Decision - a public document that identifies the selected remedy at a site, outlines the process used to reach a decision on the remedy, and confirms that the decision complies with CERCLA.

Responsiveness Summary - the part of the Record of Decision that summarizes and provides responses to comments received on a proposed action for a site during the public comment period.

Preferred Alternatives

Preferred remedial alternatives are recommended by the agencies for the nine sites of concern (see Figure 3) at the Naval Reactors Facility that pose potential adverse impacts to human health or the environment. These sites of concern are based on information contained in the Comprehensive RI/FS report and are listed below (the numerical sequence in parenthesis is the site designation given in the Action Plan of the ***Federal Facility Agreement and Consent Order***):

- S1W Tile Drainfield and L-shaped Sump (8-08-11)
- Underground Piping to Leaching Pit (8-08-12A)
- S1W Leaching Pit (8-08-12B)
- S1W Leaching Beds (8-08-14)
- S1W Retention Basins (8-08-17)
- A1W Leaching Bed (8-08-19)
- Old Sewage Basin (8-08-21A)
- Sludge Drying Bed (8-08-21B)
- A1W/S1W Radioactive Line Near BB19 (8-08-80).

Federal Facility Agreement and Consent Order (FFA/CO) - an agreement between the EPA, the state of Idaho, and the DOE to evaluate waste disposal sites at the INEEL, and perform remediation, if necessary.

The terms leaching bed, pit, drainfield, basin, and pond were frequently interchanged during the course of their existence. The terms used in this plan are typically those identified during site designation prior to investigative activities.

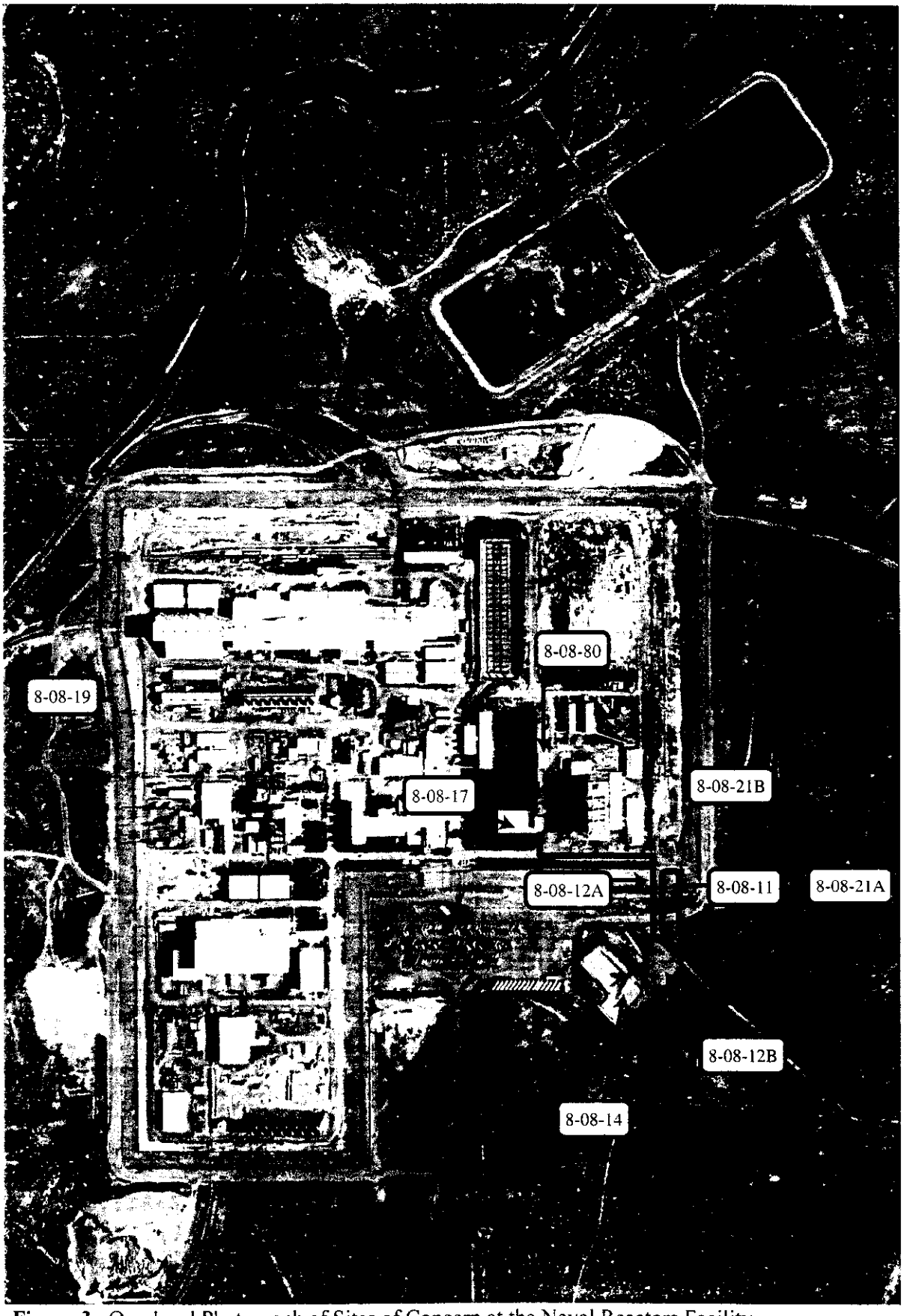

Figure 3. Overhead Photograph of Sites of Concern at the Naval Reactors Facility

The alternatives considered for these sites of concern include No Action; Limited Action; Limited Excavation, Disposal, and Containment; and Complete Excavation and Off-site Disposal. The recommended preferred remedial alternative is Limited Excavation, Disposal, and Containment. This alternative is more fully explained on page 14.

In addition to the nine sites of concern, there are 62 other identified release or potential release sites at the Naval Reactors Facility. Ten of these sites were determined by the agencies via a previous Record of Decision to be No Action sites or a remedial action was performed. The remaining 52 sites are being recommended for No Action or No Further Action and are discussed on page 19 of this proposed plan.

Site Background

The Idaho National Engineering and Environmental Laboratory (INEEL) was established in 1949 as the National Reactor Testing Station by the United States Atomic Energy Commission as a site for building, testing, and operating nuclear reactors, fuel processing plants, and support facilities with maximum safety and isolation. In 1974, the area was redesignated as the Idaho National Engineering Laboratory to reflect the broad scope of engineering activities conducted there. The name was changed to the INEEL in 1997 to reflect the redirection of its mission to include environmental research.

The Naval Reactors Facility (Figures 1 and 2) was established in 1949 as a testing site for the Naval Nuclear Propulsion Program. It is located on the west-central side of the INEEL, approximately 50 miles west of Idaho Falls, Idaho. The Naval Reactors Facility is operated by Westinghouse Electric Company for the Office of Naval Reactors of the United States Department of Energy.

The Naval Reactors Facility consists of three naval nuclear reactor prototype plants, the Expended Core Facility and miscellaneous support buildings. Construction of the Submarine Thermal Reactor prototype (S1W) at the Naval Reactors Facility began in 1951 and was shut down in 1989. The Large Ship Reactor Prototype (A1W) was constructed in 1958 and was shut down in January, 1994. The submarine reactor plant prototype (S5G) was constructed in 1965 and was shut down in May, 1995. The prototypes were used to train sailors for the nuclear navy, and for research and development purposes. The Expended Core Facility, which receives, inspects, and conducts research on naval nuclear fuel, was constructed in 1958 and is still operational.

In 1989, the INEEL was placed on the ***National Priorities List***. In 1991, the agencies signed the Federal Facility Agreement and Consent Order under CERCLA. This agreement and the associated ***Action Plan*** defined the decision process for conducting assessments and investigations of potential contaminant release areas.

Within each Waste Area Group, all areas with a potential for past contaminant releases were identified as sites. Each site was categorized according to perceived risk. The categories are ***Track 1***, ***Track 2***, ***Interim Action***, and Remedial Investigation/ Feasibility Study. Those sites with similar releases and migration

National Priorities List - a formal listing of the nation's hazardous waste sites as established by CERCLA that have been identified for possible remediation. Sites are ranked by the EPA based on their potential for affecting human health and the environment.

Action Plan - a document that implements the INEEL FFA/CO.

Track 1 - an area or group of areas which is believed to have a low probability of risk. Sufficient information is available to evaluate the area and recommend a course of action.

Track 2 - an investigation of an area which does not have sufficient data available to make a decision concerning the level of risk or to select or design a remedy. Field data collection may be necessary.

Interim Action - an action taken to mitigate a clear, unacceptable risk at a site when there is sufficient data to assess the risk and select an action.

Operable Unit - an area or areas with distinct characteristics or similar wastes.

IDAHO DEPARTMENT OF HEALTH AND WELFARE
DIVISION OF ENVIRONMENTAL QUALITY

The Idaho Department of Health and Welfare is one of the three agencies identified in the INEEL Federal Facility Agreement and Consent Order, which establishes the scope and schedule of remedial investigations at the INEEL. Correspondence by the Division of Environmental Quality staff concerning this project can be found in the Administrative Record for this project under Operable Unit 8-08.

For additional information concerning the State's role in preparing this proposed plan, contact:

Dean Nygard
Idaho Department of Health and Welfare
Division of Environmental Quality
1410 N. Hilton
Boise, ID 83706
(208) 373-0285, (800) 232-4635

The U.S. Environmental Protection Agency is one of the three agencies in the INEEL Federal Facility Agreement and Consent Order, which establishes the scope and schedule of remedial investigations at the INEEL. Correspondence by the Region 10 staff concerning this project can be found in the Administrative Record under Operable Unit 8-08.

For additional information concerning the EPA's role in preparing this proposed plan, contact:

Wayne Pierre
Environmental Protection Agency
Region 10
1200 Sixth Avenue
Seattle, Washington 98101
(206) 553-7261

pathways were grouped into ***Operable Units***. This proposed plan addresses all the Operable Units at the Naval Reactors Facility.

Remedial Investigation

The Comprehensive Remedial Investigation included the following overall objectives:

- Assess risk from individual sources not previously evaluated
- Evaluate potential risk due to groundwater, if any
- Evaluate sites for potential cumulative effects
- Perform an ecological risk assessment.

The tasks associated with each of these objectives are described in the following paragraphs.

Operable Unit 8-08 Individual Site Assessments

The remedial investigation included evaluating several radiological areas. The radiological areas include 18 sites suspected to have received radiological releases. These sites are grouped under Operable Unit 8-08 because of similar constituents, release mechanism, and migration paths. The 18 sites represent areas where past controlled releases of low-level radioactive water were discharged and areas where inadvertent releases to the environment because of leaks from corroded piping, leaks in underground concrete basins, surface releases, and cross-contamination of non-radiological systems with radiological systems occurred. The 18 sites specifically assessed during the Comprehensive Remedial Investigation are shown below. An additional site (8-03-23, Sewage Lagoons) was included in the individual 8-08 site assessments because a Track 1 investigation determined that an additional evaluation was required for the radiological constituents present at this site.

The individual 8-08 site assessments performed during the Comprehensive Remedial Investigation are:

- Old Ditch Surge Pond (8-08-02);
- S1W Tile Drain Field and L-shaped Sump (8-08-11);
- Underground Piping to Leaching Pit (8-08-12A);
- S1W Leaching Pit (8-08-12B);
- S1W Temporary Leaching Pit (8-08-13);
- S1W Leaching Beds (8-08-14);
- Radiography Building Collection Tanks (8-08-16);
- S1W Retention Basins (8-08-17);
- A1W Leaching Bed (8-08-19);
- Old Sewage Basin (8-08-21A);
- Sludge Drying Bed (8-08-21B);
- S5G Basin Sludge Disposal Bed (8-08-32);
- Seepage Basin Pumpout Area (8-08-43);
- Hot Storage Pit (8-08-66);
- ECF Water Pit Release (8-08-79);
- A1W/S1W Radioactive Line Near BB19 (8-08-80);
- A1W Processing Building Area Soil (8-08-81);
- Sewage Lagoons (8-03-23).

Remedial Investigation Sampling Plan

The remedial investigation reviewed existing data, performed sampling, evaluated the nature and extent of contaminants, and assessed the human health risks associated with the 8-08 sites. The 18 sites were arranged in nine sampling areas to collect surface and subsurface soil samples. The purpose of the sampling varied with the area being sampled. In some locations, radiological constituents were known to be present above probable clean up levels and, therefore, sampling was performed to determine the estimated volume of soil that may require a remedial action. In other locations, samples were collected to determine if a source was present and to help evaluate the extent of the contamination. Sampling included radiological and nonradiological contaminants in the soil and groundwater.

Results of the Individual 8-08 Site Assessments

The ultimate purpose of the individual 8-08 site assessments is an evaluation of the potential human health effects and risks associated with each site. The human health risk assessment includes a Track 2 risk assessment approach, which uses conservative assumptions to avoid underestimating the potential health effects and risks present from a particular site. The human health risk assessment includes the identification and screening of contaminants of potential concern and an analysis of the exposure routes associated with the contaminants. The following routes for contaminant exposure were considered in the individual 8-08 site assessments; ingestion of soil, inhalation of dust, external exposure to radionuclides, ingestion of groundwater, and the ingestion of home grown produce. The dermal exposure to contaminants through direct contact with the soil or groundwater was qualitatively evaluated. The risk assessment includes the evaluation of current and future workers and future residents. The time frame considered for the future worker is 30 years in the future, while the time frames considered for the future resident are 30 and 100 years in the future. Because it is anticipated that controls will remain in place for at least the next 100 years, preferred alternatives are based on the 100-year hypothetical residential scenario. Additional information on the individual 8-08 site risk assessments can be obtained from Volume 1, Sections 2 through 17 of the *Naval Reactors Facility Comprehensive Remedial Investigation/Feasibility Study for Waste Area Group 8.*

Carcinogenic effects are calculated as the incremental probability of an individual developing cancer over a lifetime as a result of exposure to the potential carcinogen. Generally, CERCLA cleanup decisions are based on carcinogenic ***excess risk*** levels slightly greater than 1 chance in 10,000. This means that if exposure to site contaminants was calculated to result in one excess cancer occurrence in a human population of 10,000, the agencies may require some type of action. The ***target risk range*** for CERCLA sites is between 1 chance in 10,000 and 1 chance in 1,000,000. A remedial action is likely at risk levels greater than 1 chance in 10,000. However, a risk management decision on whether a remedial action is appropriate is made by the agencies when the calculated risk levels are between 1 chance in 10,000 and 1 chance in 1,000,000.

The potential for noncarcinogenic effects is evaluated by comparing an exposure level over a specified time period (e.g., lifetime) with a toxicity ***reference dose (RfD)*** derived for a similar exposure period. The ratio of exposure to the RfD is called a hazard quotient. The sum of all hazard quotients associated with a

The U.S. Department of Energy is one of the three agencies identified in the INEEL Federal Facility Agreement and Consent Order, which establishes the scope and schedule of remedial investigations at the INEEL.

Written comments can be submitted to the **U.S. Department of Energy, Naval Reactors, Idaho Branch Office**, and addressed to:

Mr. Andy Richardson
DOE Naval Reactors Facility
Project Manager
P.O. Box 2469
Idaho Falls, ID 83403-2469

For additional information regarding the Environmental Restoration Program at the INEEL, call (800) 708-2680 or (208) 526-4700

excess risk - a possibility of contracting cancer above the national average.

target risk range - an upper and lower risk level where a remedial action may be required if the agencies determine an action is justified. A risk greater than this range typically requires a remedial action. A risk less than 1 chance in 1,000,000 is considered acceptable.

reference dose (RfD) - a toxicity value representing the acceptable upper limit of a substance. The RfD is used to determine non-carcinogenic effects.

hazard index - a numerical value that indicates the potential for the most sensitive individuals to be adversely affected by a noncarcinogenic constituent. When the hazard index exceeds 1, further consideration and risk management decisions must be considered.

contaminants of concern - chemical or radiological constituents with the greatest potential for causing adverse human effects at Waste Area Group 8. Typically, these constituents represent a risk greater than 1 chance in 1,000,000 or a hazard index of 1.

Contaminants of Concern at Operable Unit 8-08

Americium, radioisotope 241 (Am-241)
Cesium, radioisotope 137 (Cs-137)
Neptunium, radioisotope 237 (Np-237)
Nickel, radioisotope 63 (Ni-63)
Plutonium, radioisotopes 238 and 244 (Pu-238, Pu-244)
Strontium, radioisotope 90 (Sr-90)
Uranium, radioisotope 235 (U-235)
Lead

particular area is the ***hazard index***. The calculation of the hazard index involves the use of uncertainty factors to ensure a large safety margin is present. For example, the calculations used for the ingestion of homegrown produce in the residential scenarios assumes that the contaminant mercury was in the most toxic form (methylmercury), although this is unlikely at the Naval Reactors Facility.

The remedial investigation showed that some 8-08 sites contain a potential risk for causing adverse human health effects. The results of the risk assessments for these areas for the future 100-year residential scenario are summarized in Table 1. The contaminants with the greatest potential for causing adverse human health effects at Waste Area Group 8 are eight radionuclides and one metal. The individual 8-08 site evaluations show that the primary ***contaminants of concern*** are cesium-137, strontium-90, and lead. Table 1 provides the carcinogenic risk and hazard index summary for the sites of concern.

Table 1. Human Health Risk Assessment Summary for Areas of Concern

Site	Occupational Scenario[a]		Residential Scenario[b]	
	Total Cancer Risk	Hazard Index	Total Cancer Risk	Hazard Index
• S1W Tile Drainfield[c] (8-08-11)	7 in 1,000,000	0.02	3 in 100,000	0.1
• L-shaped Sump[d] (8-08-11)	6 in 10,000	0.02	3 in 10,000	0.1
• Underground Piping to Leaching Pit (8-08-12A)	1 in 10	0.02	4 in 100	17[f]
• S1W Leaching Pit[e] (8-08-12B)	4 in 100	0.2	1 in 100	12[f]
• S1W Leaching Beds[e] (8-08-14)	4 in 100	0.2	1 in 100	12[f]
• S1W Retention Basins (8-08-17)	(g)	(g)	(g)	(g)
• A1W Leaching Bed (8-08-19)	3 in 100	0.04	1 in 100	0.2
• Old Sewage Basin (8-08-21A)	3 in 1,000	0.4	2 in 1,000	30[f]
• Sludge Drying Bed (8-08-21B)	6 in 10,000	0.1	3 in 10,000	38[f]
• A1W/S1W Radioactive Line Near BB19 (8-08-80)	9 in 100	NA	4 in 100,000	NA

a. The risks shown are for the current occupational scenario. These risks assume that no controls are in place and there is unlimited access to the area.
b. The risks shown are for the 100-year future residential scenario which was determined to be the most likely time frame before any residence would ever be established in the vicinity of the Naval Reactors Facility.
c. Although the risk assessment for the S1W tile drainfield (8-08-11) did not show an unacceptable risk, there is some uncertainty that the sampling performed during the remedial investigation did not intersect the potential contaminant zone.
d. The S1W tile drainfield and L-shaped sump (8-08-11) were evaluated separately during the remedial investigation.
e. The S1W leaching beds (8-08-14) and S1W leaching pit (8-08-12B) were evaluated together because of their close proximity to each other and similar disposal practices at each site.
f. The Hazard Index at these sites was due to antimony (8-08-21A), arsenic (8-08-12B and 8-08-14), and mercury (all sites). A risk management decision was made by the agencies that these constituents were not contaminants of concern because of the very conservative estimates used in the risk assessments. For an example of the conservative nature of the risk assessments, see the discussion of mercury in the text on this page.
g. The S1W retention basins (8-08-17) were not included in the risk assessment for operable unit 8-08. Sampling below the basins was deferred until the retention basins are removed. The soil beneath the basins will be remediated as part of the planned remedial actions. The cleanup levels established during the remedial investigation and feasibility study will be applied to this area.

For the contaminant lead, a risk assessment was not performed because the EPA has developed a screening level for lead cleanup, which is 400 parts per million (ppm). A separate risk assessment model other than the common Track 2 calculations would have been required. A decision was made by the agencies that any location where lead was detected above the screening level would require further evaluation.

For 8-08-17 (S1W Retention Basins), a prescoping decision was made not to attempt to sample below the concrete basins. Sampling would have been extremely difficult and expensive. Since sufficient historical evidence is available on the amount of water that may have leaked from the basins, the basins are to be removed and a remedial action will be taken for the soil beneath the basins if determined by the agencies to be necessary. Process knowledge suggests that some contamination in excess of ***remediation goals*** is likely to be found when the basins are removed. The basins initially stored water prior to release to downstream facilities (i.e. S1W leaching beds) that are known to contain contaminants greater than remediation goals. Leakage from the basins likely caused contamination greater than remediation goals under the basins. Cleanup levels established for other 8-08 sites with similar process discharges will be used for the remedial action at 8-08-17.

remediation goals - specific constituent concentrations that cleanup actions would attempt to achieve.

The following is a brief description of each 8-08 site that is of concern because of potential increased risks related to the contaminants present at the site:

S1W Tile Drainfield and L-shaped Sump (8-08-11) - This area consists of a below surface concrete L-shaped sump and various underground perforated drainfield pipes downstream of the sump. The drainfield was estimated to have been used between 1953 and 1955. The L-shaped sump portion was used until 1960 as part of the sewage system. Although contamination above recommended remediation goals was not found during past sampling at the drainfield, known discharges of radioactive water occurred at this site and potential contamination above the remediation goals may be present. Results of sampling within the sump and along the piping leading to the sump detected cesium-137 above remediation goals. Therefore, liquids that reached the tile drainfield may have contained similar contaminants and concentrations. Additionally, since geophysics and limited sampling could not determine the location of the drainfield, the only way to adequately assess the contamination in the tile drainfield may be to sample following removal of the sump and drainfield piping. The primary contaminant of concern is cesium-137.

S1W Leaching Pit (8-08-12) - This site has been redefined as two separate areas for evaluation purposes. 8-08-12A consists of an underground pipe leading from the S1W retention basins (8-08-17) to a below surface concrete manhole. This pipe is known to have leaked on occasion. From the manhole, a perforated pipe used for draining or leaching purposes ran 400 feet to a leaching pit (8-08-12B) constructed at the end of the pipe. 8-08-12B was a pond area where radioactive water was allowed to leach into the subsurface or evaporate. The underground perforated piping (8-08-12A) and leaching pit (8-08-12B) were used from 1955 through 1961. The pond area has since been filled in and covered with asphalt. The primary contaminants of concern at 8-08-12A are cesium-137 and strontium-90. The primary contaminants of concern at 8-08-12B are cesium-137, strontium-90, and lead.

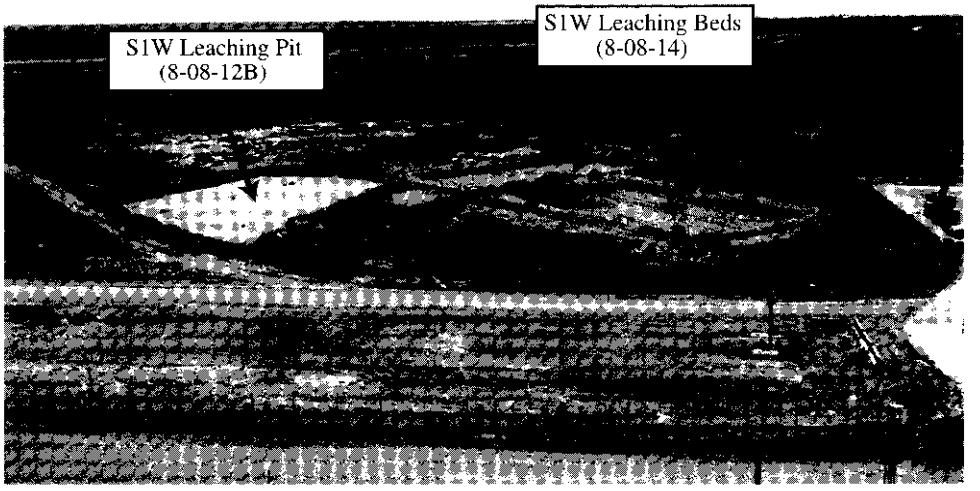

Figure 4. S1W Leaching Beds and Leaching Pit

S1W Leaching Beds (8-08-14) - This area consists of two leaching beds; one constructed in 1960 and the other constructed in 1963. These beds were open ponds that collected radioactive water and allowed the water to leach into the subsurface or evaporate. The majority (78%) of the radioactive water releases from the Naval Reactors Facility were to 8-08-14 and 8-08-19 (A1W leaching bed). The beds were used until 1979. Large cobblestone was later placed in the leaching beds (see Figure 4). The primary contaminants of concern at 8-08-14 are cesium-137 and strontium-90.

S1W Retention Basins (8-08-17) - The retention basins are concrete basins partially below the surface that collected radioactive water from various facilities. This was a storage area prior to releasing the water to 8-08-11, 8-08-12, or 8-08-14. The basins are known to have leaked an estimated 33,000 gallons on one occasion. As previously explained, sampling has been deferred until the basins are removed. The soil beneath the basins will be remediated if necessary to the cleanup criteria established in the Record of Decision. The primary contaminants of concern at 8-08-17 are cesium-137 and strontium-90.

A1W Leaching Bed (8-08-19) - This area consists of an underground leaching bed. A perforated pipe runs through an engineered leaching bed that consists of various layers of gravels and sand. As explained above, 8-08-19 and 8-08-14 represent the areas where the majority (78%) of radioactive water was released at the Naval Reactors Facility. The primary contaminants of concern at 8-08-19 are cesium-137 and strontium-90.

Old Sewage Basin (8-08-21) - This site has been redefined as two separate areas for evaluation purposes. 8-08-21A consists of a former sewage basin area. The basin was an open pond used for non-radiological discharges. Cross-contamination with the radiological discharge system occurred in 1956. 8-08-21A was used from 1956 to 1960. The primary contaminant of concern is cesium-137. 8-08-21B is referred to as a sludge drying bed and consists of a concrete bottom bed below surface level. 8-08-21B received sewage sludge from the sewage system and was

cross-contaminated by the radioactive discharge system when 8-08-21A became contaminated. 8-08-21B was used from 1951 to 1960. The primary contaminant of concern at 8-08-21B is cesium-137.

A1W/S1W Radioactive Line Near BB19 (8-08-80) - This area consists of an underground pipe that was known to have leaked near the S1W spray pond. The pipe carried radioactive water for eventual discharge to the S1W leaching beds. Previous sampling has not shown levels above remediation goals, but the potential exists that contaminants above remediation goals remain in the soil. The primary contaminants of concern at 8-08-80 are cesium-137 for the future residential scenario and cobalt-60 for the current occupational scenario; however, an exposure route would not be present for the occupational scenario if current institutional controls are maintained.

Cumulative Risk Assessment

The Comprehensive Remedial Investigation includes an assessment of the potential cumulative human health effects of Waste Area Group 8 sites. The cumulative assessment includes retaining all the identified Waste Area Group Sites and screening the sites based on the presence of a ***source***. If a source was not present, the site was screened out of the cumulative assessment. After this initial screening, the remaining sites with sources or potential sources present were evaluated based on the degree of risk present. The degree of risk used for screening purposes was a carcinogenic risk of 1 in 10,000,000 or a hazard quotient of 0.1. These risk values are a division of ten smaller than typical minimum risk levels where risk management decisions are required to determine potential remedial alternatives. The reason for using these risk values for screening purposes is to prevent the unwarranted elimination of sites with contaminants that may, through additive effects with other sites, show a potential adverse effect to human health or the environment. For some Waste Area Group 8 sites, a Track 1 investigation was performed where specific risk values are not calculated. For these instances, the contaminant concentrations present at the site are compared to 1/10 (one-tenth) the risk-based soil concentrations. The risk-based concentrations are estimated soil concentrations that correlate to a potential carcinogenic risk of 1 in 1,000,000. The division of 10 for screening purposes corresponds to a risk of 1 in 10,000,000.

source - the presence of a contaminant associated with man-made processes.

The cumulative risk assessment evaluates the future 100-year residential and occupational scenarios. The pathways considered are the inhalation of dust, ingestion of groundwater, and the external exposure to radionuclides. The ingestion of soil, the ingestion of food crop, and direct contact with soil through the dermal pathway are not included in the cumulative assessment because these involve exposure routes that are not likely to occur at more than one release site at a time.

The cumulative risk assessment does not show any additional contaminants of concern that were not identified in the individual site assessments with the exception of chromium. Chromium is determined to have a hazard quotient of 3.5 through the residential inhalation pathway. However, considering the very conservative estimates made throughout the risk assessment process and the hazard quotient being near 1.0, risks attributed to chromium are acceptable and likely to be lower than calculated. The results of the cumulative risk assessment suggest that the individual site assessments do not underestimate the risks. Risk management decisions made on an area by area basis and actions taken on individual areas will be adequate for

Waste Area Group 8 as a whole. More information on the cumulative risk assessment can be found in Volume 2, Section 18 of the *Naval Reactors Facility Comprehensive Remedial Investigation/FeasibilityStudy for Waste Area Group 8.*

Ecological Risk Assessment

An ecological risk assessment for Waste Area Group 8 is included in the Comprehensive Remedial Investigation. The ecological risk assessment for Waste Area Group 8 includes screening out sites that do not have a potential source of contamination and/or a pathway to ecological receptors. Those sites that were not screened were evaluated using the approach presented in the *Guidance Manual for Conducting Screening Level Ecological Risk Assessment for INEL.* The screening level ecological risk assessment concluded that three metals (lead, mercury, and arsenic) are the primary risk drivers for ecological receptors at Waste Area Group 8. The ecological risk assessment qualitatively evaluated the effects of these metals on three receptors that were identified as representative to the INEEL ecosystem. Exposure values for the metals were calculated and found to be below a comparable range of no observable adverse effect levels found in technical literature. Therefore, risks associated with the exposures to the ecological receptors are characterized as low, indicating no additional actions are required due to estimated risks to ecological receptors. More information on the ecological risk assessment can be found in Volume 1, Section 19 and Appendix D of the *Naval Reactors Facility Comprehensive Remedial Investigation/FeasibilityStudy for Waste Area Group 8.*

Hydrogeologic Study

The Comprehensive Remedial Investigation includes a hydrogeologic study. The study consists of a review of past hydrologic and geologic studies, review and interpretation of seven years of groundwater data collected near the Naval Reactors Facility, flow modeling of the ***Snake River Plain Aquifer***, modeling of contaminant fate and transport, and developing groundwater contour, flow direction, and contaminant migration maps. The hydrogeologic study concludes that the Naval Reactors Facility has had minimal impact on the aquifer. Sample data show that elevated concentrations of chromium, tritium, various salts, and perhaps nitrates exists in the vicinity of the Naval Reactors Facility; however, none of the concentrations approach drinking water ***maximum contaminant levels*** established by the EPA. More information on the hydrogeologic study can be found in Volume 2, Appendix H of the *Naval Reactors Facility Comprehensive Remedial Investigation/FeasibilityStudy for Waste Area Group 8.*

Snake River Plain Aquifer - a large body of water that underlies a large portion of southeastern Idaho including the INEEL. Depth to the aquifer near the Naval Reactors Facility is 470 feet.

maximum contaminant level - contaminant level standards established under the Safe Drinking Water Act that are not to be exceeded for water being used for human consumption.

Remedial Action Objectives

Remedial action objectives are medium-specific goals established to protect human health and the environment. The following are the remedial action objectives developed for the 8-08 sites of concern:

For Human Health Protection

- Prevent external gamma radiation exposure from all radionuclides of concern that exceed a total exposure pathway excess cancer risk of 1 in 10,000 to 1 in 1,000,000 for the ***future 100-year residential receptor.***

future 100-year residential receptor - hypothetical person who would establish residence at the site of concern 100 years in the future.

- Prevent ingestion of soil and food crops contaminated with radionuclides of concern that exceed a total pathway excess cancer risk of 1 in 10,000 to 1 in 1,000,000 for the future 100-year residential receptor.

- Prevent exposure to soil contaminated with lead that exceeds the EPA recommended screening level of 400 parts per million (ppm) for lead cleanup.

For Environmental Protection

- Prevent erosion or intrusion by resident plant or animal species in contaminated soils that could cause the release of contaminated soils.

- Prevent exposure to contaminants of concern that may cause adverse effects on resident species populations.

Remediation goals, or cleanup levels, are established from the remedial action objectives given above . The remediation goals are risk-based soil concentrations corresponding to the risk values given in the remedial action objectives. Table 2 presents the risk-based concentrations for each contaminant and exposure pathway of concern. In addition, the maximum concentrations detected at any 8-08 site is also shown. From the table, it can be seen that cesium-137, strontium-90, and lead are the only contaminants that have been detected above the risk-based concentrations corresponding to a total excess cancer risk of 1 in 10,000. Therefore, the remediation goals set for 8-08 sites are 400 parts per million lead, 16.7 ***picocuries*** per gram (pCi/gm) cesium-137, and 45.6 picocuries per gram of strontium-90.

picocurie - a unit of measure for radioactivity. One curie corresponds to 37 billion disintegrations per second; one picocurie is one trillionth of a curie, or in other words, 0.037 disintegrations per second.

As facilities at the Naval Reactors Facility are dismantled, demolished, and removed, there is the potential to discover past releases to the soil that are not presently identified. Upon discovery of a new source by the agencies that source will be evaluated and appropriate response actions taken in accordance with the FFA/CO.

Summary of Alternatives

Four remedial action alternatives were considered:

Alternative 1: No Action. The soil would remain in place and no additional monitoring of the soil or groundwater would be performed. ***Institutional controls*** would not be established to prevent access to the areas. Current environmental monitoring and radiological controls would continue.

institutional controls - restrictions placed on access to the area of concern. Controls can include fencing or other physical barriers and land use restrictions.

Alternative 2: Limited Action. This combines various institutional controls and additional monitoring. Long-term monitoring of the soil and groundwater would continue through the ***control period*** . Fencing or other barriers would be constructed around the sites of concern to inhibit access to the areas. Land use restrictions would be obtained near the end of the control period to prevent excavation in areas where wastes are contained and would include the placement of permanent property markers with posted signs.

control period - the time frame that continued control would be maintained by the industrial facilities. Current projections for the Naval Reactors Facility area include industrial occupation for 100 years.

Table 2. Operable Unit 8-08 Risk-based Soil Concentrations

Contaminants of Concern	Maximum Soil Concentration Detected at Operable Unit 8-08 (pCi/gm unless specified)	Exposure Route (risk > 10^{-6})	Risk-based Soil Concentration[a] (pCi/gm unless specified)
Lead	1,140 ppm	Direct Contact	400 ppm[b]
Americium-241	20	External Exposure	895
		Ingestion of Soil	283
		Food Crop Ingestion	301
Cesium-137	7,323	External Exposure	16.7
		Ingestion of Soil	24,860
		Food Crop Ingestion	164
Neptunium-237	0.79	Food Crop Ingestion	19.8
Nickel-63	730	Food Crop Ingestion	15,846
Plutonium-238	20	Ingestion of Soil	590
		Food Crop Ingestion	1,153
Plutonium-244	0.24	External Exposure	3.3
Strontium-90	750	Ingestion of Soil	15,418
		Food Crop Ingestion	45.6
Uranium-235	0.18	External Exposure	13.2

(a) Concentration which corresponds to a 1 x 10^{-4} carcinogenic risk for the 100-year residential scenario.
(b) EPA recommended screening level for lead cleanup

Alternative 3: Limited Excavation, Disposal, and Containment. This alternative would include the excavation of soil greater than remediation goals at sites 8-08-11, 8-08-12A, 8-08-17, 8-08-21A, 8-08-21B, and 8-08-80 and the placement of the soil in 8-08-14 (S1W leaching beds), which has an estimated capacity of 90,000 cubic feet. The estimated soil to be excavated and placed in 8-08-14 is 58,080 cubic feet. Approximately 3,130 linear feet of underground piping would be removed. Concrete structures associated with the sites of concern at sites 8-08-11 (L-shaped sump), 8-08-12A (manhole), 8-08-17 (S1W retention basins), and 8-08-21B (sludge drying bed) would also be removed. The time frame for removal of the concrete structures will be established in the Remedial Design/Remedial Action Scope of Work. The piping and concrete would be disposed at an approved low level radioactive disposal area (located off-site from the Naval Reactors Facility) through current decontamination and dispositioning practices. After consolidating the soil in 8-08-14, one engineered earthen cover would be placed over the combined area of 8-08-14 and the adjacent 8-08-12B and another earthen cover would be placed over 8-08-19. Figure 5 shows the potential design of the covers. Final determination of layer thickness and layer material would be made during the remedial design process. The covers would consist of various layers of soil and gravel with possible cobblestone and rip-rap. Short-term monitoring (i.e. radiation surveys and soil sampling) during the remedial action would be performed. Long-term monitoring of the soil and groundwater would continue since the contaminated material remains on-site. Fencing or other barriers and land use restrictions as discussed for Alternative 2 would be implemented for the areas with the earthen covers. In the unlikely event that the capacity of 8-08-14 is exceeded, contingency options include off-site (away from the Naval Reactors Facility) disposal of soil that exceeds the capacity or continued consolidation at 8-08-14 above surface level.

Alternative 4: Complete Excavation and Off-site Disposal. This alternative includes the excavation of soil greater than remediation goals from all 8-08 sites of concern. The estimated amount of soil to be excavated under this alternative is 316,470 cubic feet. The soil would be sent to a site away from the Naval Reactors Facility for disposal. Possible off-site disposal locations include a proposed INEEL soil repository at the Chemical Processing Plant, the Test Reactor Area Warm Waste Pond area, the Radioactive Waste Management Complex, or an approved low-level radioactive landfill off-site from the INEEL. This alternative would include filling the excavated areas at the Naval Reactors Facility with clean fill dirt. Short-term monitoring would be performed during the remedial action. Long-term monitoring and institutional controls would not be necessary because the contaminated source will have been removed. As with Alternative 3, the removal of existing pipe and concrete structures is included in this alternative.

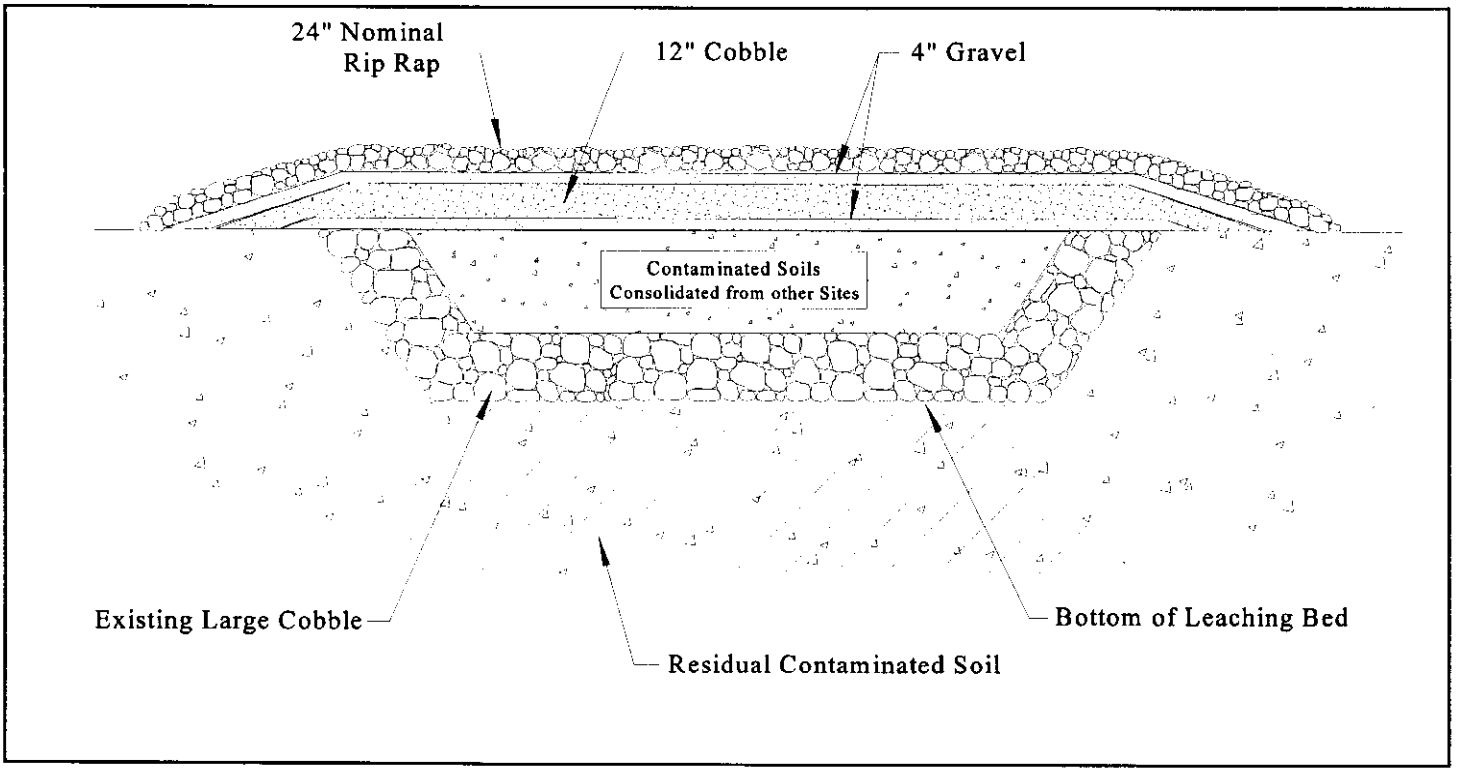

Figure 5. Potential Cover Design

Comparison of Alternatives

Each of the alternatives was evaluated using eight of the nine evaluation criteria identified under CERCLA. Each alternative was ranked according to how well it satisfied each of the first seven evaluation criteria. The results of this ranking assisted in the selection of the preferred alternative. Alternative 1 was not included in the comparison of alternatives because it does not meet the threshold criteria of protection of human health and the environment, which eliminates the alternative from consideration. Each alternative was given a ranking from 1 (best) to 3 (worst) for each of the seven criteria to be evaluated. Table 3 provides the summary of the comparative analysis of alternatives.

Table 3. Summary of Comparative Analysis of Alternatives

Evaluation Criteria	Alternative 2	Alternative 3	Alternative 4
Overall Protection of Human Health and the Environment	3	1	1
Compliance with Applicable and Relevant and Appropriate Requirements	3	1	1
Long-term Effectiveness and Permanence	3	2	1
Short-term Effectiveness	1	2	3
Reduction of Toxicity, Mobility, or Volume through Treatment	NA	NA	NA
Implementability	1	2	3
Cost	1	2	3

NA - not applicable since none of the alternatives use treatment as a process option.

The eighth criterion, state acceptance, represents the concurrence of the Idaho Department of Health and Welfare in the preparation and issuance of this Proposed Plan. The ninth criterion, community acceptance, will be evaluated using the public response to the proposed remedial actions. The comparison discussion for each criterion is summarized below.

Overall Protection of Human Health and the Environment. Alternatives 3 and 4 satisfy the criteria of overall protection of human health and the environment. These alternatives cover the contaminants preventing direct contact with the soil, restrict future land use, minimize infiltration, and provide an early indication of contaminant migration. Both Alternative 3 and 4 were given a ranking of 1. Alternative 2 relies on the enforcement of the selected process option. Alternative 2 also does not prevent direct contact with the contaminated soil by ecological receptors. Although Alternative 2 meets the general criteria of overall protection of human health, it was given a ranking of 3 based on the potential for ecological receptors to contact the soil and because it does not prevent erosion or intrusion by plant species unless additional care is given to repair erosion damage and prevent plants from establishing residence at the sites.

applicable or relevant and appropriate requirements (ARARs) - "Applicable" requirements mean those standards, criteria, or limitations promulgated under federal or state law that are required specific to a substance, pollutant, contaminant, act, location, or other circumstance at a CERCLA site. "Relevant and Appropriate" requirements mean those standards, requirements, or limitations that address problems or situations sufficiently similar to those encountered at the CERCLA site such that their use is well suited to that particular site.

Compliance with Applicable or Relevant and Appropriate Requirements. ***Applicable or relevant and appropriate requirements (ARARs)*** have been identified as either chemical-, location-, or action-specific. Alternatives 3 and 4 meet all applicable ARARs. Alternative 2 was judged not to meet the ARARs associated with controlling fugitive dust and air pollution because no action is taken to cover surface soil contaminated areas. Alternatives 3 and 4 were given a ranking of 1, while Alternative 2 was given a ranking of 3.

Long-term Effectiveness and Permanence. Alternative 2 leaves the source at the sites of concern and does not address potential long-term migration of contaminants. Because the sites are left "as is", the possibility exists for erosion damage or intrusion by plant or animals causing a potential release of contaminants. Alternatives 3 and 4 result in a lower residual risk by preventing future exposure to contaminants, although this depends on the effectiveness of the institutional controls, monitoring, and maintenance. Alternative 3 leaves the contaminant source in two

areas at the Naval Reactors Facility while Alternative 4 displaces the source to an INEEL soil repository. Alternative 4 was considered to have the highest long-term effectiveness because a contaminant source would no longer exist at the Naval Reactors Facility. Alternative 4 was given a ranking of 1, Alternative 3 was given a ranking of 2, and Alternative 2 was given a ranking of 3.

Short-term Effectiveness. In general, the alternative requiring the least amount of on-site worker activity will provide the greatest degree of short-term effectiveness. On this basis, Alternative 2 ranks better than Alternatives 3 and 4 for short-term effectiveness, because less construction activities are required. Alternative 3 ranks better than Alternative 4 because it excavates less soil and requires less handling of the contaminated soil. Based on this information, Alternative 2 is given a ranking of 1, Alternative 3 a ranking of 2, and Alternative 4 a ranking of 3.

Reduction of Toxicity, Mobility, or Volume through Treatment. None of the alternatives use treatment and, therefore, a ranking was not appropriate for this criterion. However, Alternatives 3 and 4 do reduce mobility by placing covers over the contaminated soil. Alternatives 3 and 4 do not reduce toxicity or volume. Alternative 2 does not reduce toxicity, mobility, or volume.

Implementability. Alternative 2 is the easiest to implement because materials, equipment, and personnel are readily available and the scope of the work is limited. Alternative 3 is the next easiest to implement because it also uses readily available materials, equipment, and personnel. Personnel would need additional training for Alternative 3 and the work scope is larger than Alternative 2. Alternative 4 is potentially the most difficult to implement because of additional excavation and transportation concerns and the uncertainty of the availability of off-site disposal facilities. Based on this information, Alternative 2 is given a ranking of 1, Alternative 3 a ranking of 2, and Alternative 4 a ranking of 3.

Cost. Table 4 summarizes the present worth cost estimates (1997 dollars) for each alternative. Alternative 2 has the lowest cost (not including the no action alternative) since it involves a limited work scope. Alternative 3 has the next highest cost with Alternative 4 having the highest cost because it includes additional excavation, transportation, and disposal fees. Alternatives 2, 3, and 4 are given a ranking of 1, 2, and 3, respectively.

Table 4. Cost Estimate for Alternatives

Alternative	Construction/ Capital Costs	Operation and Maintenance Costs	Total Cost
Alternative 2	$111,000	$2,840,000[a]	$2,951,000
Alternative 3	$5,900,000[b]	$3,006,000[a]	$8,906,000
Alternative 4[c]	$19,020,000[b]	$42,000	$19,062,000

(a) This cost is primarily the 30 year groundwater monitoring cost in 1997 dollars which is presently part of the Groundwater Monitoring Program at the Naval Reactors Facility. The Groundwater Monitoring Program was established in a previous Record of Decision as part of the selected remedy for the Operable Units 8-05 and 8-06 landfills and does not necessarily represent an additional cost for these alternatives.

(b) Includes presently planned decontamination and dispositioning work that would be performed regardless of the selected remedial action.

(c) This alternative does not include costs to meet Waste Acceptance Criteria, if needed, for disposal off-site from the Naval Reactors Facility.

Evaluation Criteria

Threshold Criteria:

1. **Overall Protection of Human Health and the Environment** addresses whether a remedy provides adequate protection of human health and the environment and describes how risks posed through each exposure pathway are eliminated, reduced, or controlled through treatment, engineering controls, or institutional controls.
2. **Compliance with Applicable or Relevant and Appropriate Requirements** (ARARs) addresses whether a remedy will meet all of the ARARs under federal and state environmental laws and/or justifies a waiver.

Balancing Criteria:

3. **Long-term Effectiveness and Permanence** refers to expected residual risk and the ability of a remedy to maintain reliable protection of human health and the environment over time, once cleanup goals have been met.
4. **Short-term Effectiveness** addresses any adverse impacts on human health and the environment that may be posed during the construction and implementation period and the period of time needed to achieve cleanup goals.
5. **Reduction of Toxicity, Mobility, or Volume through Treatment** addresses the degree to which a remedy employs recycling or treatment that reduces the toxicity, mobility, or volume of the contaminants of concern, including how treatment is used to address the principal threats posed by the site.
6. **Implementability** is the technical and administrative feasibility of a remedy, including the availability of materials and services needed to implement a particular option.
7. **Cost** includes estimated capital and operation and maintenance costs, expressed as net present-worth costs.

Modifying Criteria:

8. **State Acceptance** reflects aspects of the preferred alternative and other alternatives that the state favors or objects to, and any specific comments regarding state ARARs or the proposed use of waivers.
9. **Community Acceptance** summarizes the publics general response to the alternatives described in the proposed plan and in the remedial investigation/feasibility study, based on public comments received.

More INEEL Information

General information concerning INEEL's mission and its major programs can be found in INEEL Information Repositories. Visit one of the repositories or call (800) 708-2680 to ask about INEEL activities or request background information.

The following is an abbreviated title list of the primary documents available for public review in the Administrative Record:

- Comprehensive RI/FS Final Work Plan, Operable Unit 8-08, October 1995
- NRF Comprehensive RI/FS, Waste Area Group 8, September 1997
- RI/FS Final Work Plan, Exterior Industrial Waste Ditch, Operable Unit 8-07, September 1992
- Final RI/FS for the Exterior Industrial Waste Ditch, Operable Unit 8-07, February 1994
- Record of Decision, Naval Reactors Facility, Industrial Waste Ditch and Landfill Areas, Operable Units 8-07, 8-06, and 8-05, September 1994
- Remedial Design Report/Remedial Action Work Plan for the Naval Reactors Facility Inactive Landfills, August 1995
- Final Remedial Action Report for the Naval Reactors Facility Inactive Landfills, February 1997

Other documents available for public review in the Administrative Record include Track 1 Decision Documentation Packages and Track 2 Summary Reports.

State Acceptance. The Proposed Plan has been prepared and issued with the concurrence of the Idaho Department of Health and Welfare.

Summary of Preferred Alternative for 8-08 Sites of Concern

Each of the alternatives, with the exception of the no action alternative, would meet the remedial action objectives associated with the protection of human health. Alternative 1, No Action, does not meet the threshold criteria of overall protection of human health and the environment for each of the 8-08 sites of concern. Alternative 2, Limited Action, may not meet the remedial action objectives for protection of environmental receptors. Alternative 2 was determined not to meet the ARAR requirements associated with controlling fugitive dust and air pollution, although there is no evidence that specific regulatory levels would be exceeded. Alternatives 3 and 4 meet all remedial action objectives and provide overall protection of human health and the environment. Both alternatives meet all the ARARs. Alternative 3 (Limited Excavation, Disposal, and Containment) best meets the first seven evaluation criteria and is therefore the preferred alternative. Alternative 4 (Complete Excavation and Off-site Disposal) was not the preferred alternative because it has higher costs, is more difficult to implement, and offers less short-term effectiveness than Alternative 3.

Alternative 3 includes the following actions. Soil above 16.7 picocuries per gram of cesium-137 and 45.6 picocuries per gram of strontium-90 would be removed from sites 8-08-11 (S1W Tile Drainfield and L-shaped Sump), 8-08-12A (Underground Piping to Leaching Pit), 8-08-17 (S1W Retention Basins), 8-08-21A (Old Sewage Basin), 8-08-21B (Sludge Drying Bed) and 8-08-80 (A1W/S1W Radioactive Line Near BB19), if present. These areas contain underground pipes or concrete structures that are planned for removal during decontamination and dispositioning activities at the Naval Reactors Facility. Disposal of pipes and concrete debris would be through current decontamination and dispositioning practices and would likely be sent to the Radioactive Waste Management Complex. Sampling concurrent with excavation activities would ensure all soil above remediation goals is adequately removed. After the soil is excavated, it would be placed in site 8-08-14 (S1W leaching beds). The estimated contaminated soil volume from all the proposed excavation areas would fit into the present leaching beds. Sites 8-08-14 and 8-08-12B (S1W leaching pit) would be covered with an engineered earthen cover. Another cover would be placed over site 8-08-19 (A1W leaching bed). The cover design would be determined during the remedial design phase, but would likely include soil, gravel, cobble, and/or rip-rap to ensure proper containment of the contaminants. This alternative includes operation and maintenance costs for long-term maintenance of the covers. Institutional controls including fencing or other barriers and land use restrictions will be implemented to prevent access to the covered areas. Long-term monitoring of the Naval Reactors Facility groundwater via the present groundwater well network and soil around the covered areas would be performed. CERCLA requires a 5-year review to verify the effectiveness of the remedy. Contingency actions would include off-site (away from the Naval Reactors Facility) disposal of soil that exceeds the capacity of the S1W leaching beds or continued consolidation at the S1W leaching beds above surface level, although these are unlikely to be necessary.

No Action and No Further Action Sites

Several sites were determined by the agencies during previous investigations to require no further action. At that time, a no further action decision indicated that enough information was present during the Track 1 or Track 2 investigation to initially evaluate the site without a need to obtain additional information or perform a response action. In most cases, the sites were determined to have no source present, a low risk, or no exposure route available under current site conditions such as limited or restricted access. The Comprehensive RI/FS further evaluated these sites through the hydrogeologic study, cumulative risk assessment, and ecological risk assessment previously discussed and determined no response actions were necessary. Based on the RI/FS evaluation, a ***No Action*** recommendation is proposed by the agencies for those sites with no source present or a source present that represents an acceptable risk for unrestricted use. A ***No Further Action*** recommendation is proposed for those sites with a source or potential source present but do not have an exposure route available under current conditions. A No Further Action site will be included in the CERCLA 5-year review to ensure that site conditions used to evaluate the site have not changed and to verify the effectiveness of the no further action decision. Following is a brief description of each site and whether the site is recommended as a No Action or No Further Action site.

Operable Unit 8-01. This unit consists of seven construction rubble sites. These sites primarily contain rubble from past construction projects at the Naval Reactors Facility. Each site was evaluated in a Track 1 investigation and is recommended by the agencies as a No Action site.

NRF-03 is an excavated pit that provided clean fill for construction projects. The east end of the pit has been used for disposal of construction debris such as gravel, concrete, metal, and wood. The southeast portion of the pit was used for 3 months in 1985 for routine nonhazardous discharge water. The pit has also been used as a gunnery range for security personnel. Soil sampling showed only slightly elevated amounts of metals. The qualitative risk was determined to be low and this site is recommended as a No Action site.

NRF-06, 08, 33, 41, and 63 are rubble piles from past construction projects. The rubble piles consist primarily of soil, concrete, metal, and wood. No hazardous source is present. These sites are recommended as No Action sites.

NRF-40 is a soil pile from an expansion project to enlarge the current sewage lagoons. No hazardous source is present. This site is recommended as a No Action site.

Operable Unit 8-02. This unit consists of eleven miscellaneous sites that were initially designated as Track 1 low priority sites. Each site was evaluated in a Track 1 investigation. Nine sites are recommended by the agencies as No Action sites, and two are recommended as No Further Action sites. Those sites that are recommended as No Action or No Further Action are identified below.

NRF-09 is comprised of three parking lot runoff trenches that allow water from spring thaws and heavy rainfall to drain from the parking lot. Soil sampling showed

INEEL Information Repositories

INEEL Technical Library
DOE-ID Public Reading Room
1776 Science Center Drive
Idaho Falls, ID 83415
(208) 526-1185

Shoshone-Bannock Library
HRDC Building
Bannock and Pima Streets
Fort Hall, ID 83202
(208) 238-3882

University of Idaho Library
University of Idaho Campus
Moscow, ID 83843
(208) 885-6344

No Action - Site has no source present or a source is present at a level with an acceptable risk for unrestricted use. No action is required at the site. These sites are not part of the CERCLA 5-year review process.

No Further Action - Site has a source or potential source present that does not have an exposure route available under current site conditions. These sites would be included in the CERCLA 5-year review process to verify the effectiveness of the no further action decision.

Operable Unit 8-01
- NRF-03, ECF Gravel Pit
- NRF-06, Southeast Landfill
- NRF-08, North Landfill
- NRF-33, South Landfill
- NRF-40, Lagoon Construction Rubble
- NRF-41, East Rubble Area
- NRF-63, A1W Construction Debris Area

Operable Unit 8-02

- NRF-09, Parking Lot Runoff Leaching Trenches
- NRF-37, Old Painting Booth
- NRF-38, ECF French Drain
- NRF-42, Old Sewage Effluent Ponds
- NRF-47, Site Lead Shack (Building #614)
- NRF-52, Old Lead Shack
- NRF-54, Old Boilerhouse Blowdown Pit
- NRF-55, Miscellaneous NRF Sumps and French Drains
- NRF-61, Old Radioactive Materials Storage and Laydown Area
- NRF-64, South Gravel Pit
- NRF-68, Corrosion Area Behind BB11

elevated amounts of lead and silver; however, the qualitative risk was determined to be low. This site is recommended as a No Action site.

NRF-37 is the former location of a temporary painting booth and storage area. The area was used from approximately 1963 to 1970. Soil sampling showed no detectable solvents or elevated amounts of metals, therefore, no hazardous source is present. This site is recommended as a No Action site.

NRF-38 is a precast manhole that received steam condensate from the site steam system. The condensate would evaporate or infiltrate into the soil. The manhole is estimated to have been used from 1958 to the 1980s. No hazardous source is present. This site is recommended as a No Action site.

NRF-42 is the location of a former temporary sewage effluent pond used in the 1950s. There is no evidence that a hazardous source exists at the site, but elevated amounts of metal, semi-volatile organic, and low-level radionuclide contaminants may be present based on past sampling performed in the current sewage lagoons. Based on average concentration data from the current sewage lagoons, this site does not represent a significant groundwater threat. The site is currently covered with a 10 foot layer of soil, thus limiting ingestion or direct contact with any contaminants, if present. Based on current conditions (i.e. 10 foot soil cover), the qualitative risk was determined to be low. This site is recommended as a No Further Action site.

NRF-52 and NRF-47 represent three locations of a lead casting and storage building. NRF-52 consists of two former locations in which the soil has been disturbed after each building relocation because of past construction activities. Soil samples collected near the original building location showed elevated levels of lead; however, the levels were still below the remediation goal of 400 ppm. The qualitative risk for the original building location was determined to be low. The building was then moved in 1956. There was no evidence of elevated lead levels at this second location. No hazardous source is present at this second building location. Although the building is no longer used for lead casting, samples collected from the current building location (NRF-47) showed the building siding and drainage system did not have elevated lead levels; thus, no hazardous source was determined to be present. These sites are recommended as No Action sites.

NRF-54 is a steam boiler blowdown pit that was used for several years in the 1950s. The pit has reinforced concrete walls and a dirt floor. The condition of the pit is not known since it is presently covered by grass. The pit received water from blowdown of the boilers to prevent scale buildup in the system. No hazardous source is present. This site is recommended as a No Action site.

NRF-55 consists of 17 french drains located around the Naval Reactors Facility. Eleven of the drains are used for steam condensate, five for storm water, and one receives water from occasional washing of vehicles. The french drains are gravel filled excavations to promote infiltration. These drains would not have received hazardous constituents, eliminating any hazardous source. This site is recommended as a No Action site.

NRF-61 is a former location of a radioactive material storage and laydown area that was used from 1954 to 1960. Soil sampling showed detectable amounts of cesium-137 that were well below the remediation goal. The qualitative risk

assessment assumed an institutional control period for the future residential scenario. The qualitative risk was determined to be low. This site is recommended as a No Further Action site.

NRF-64 is a gravel pit that has been used as a construction rubble pile. The rubble pile consists of concrete, metal, wood, and asphalt. A piece of asbestos was found at the site in 1989. A burn pile exists near the gravel pit and the ground appears stained with petroleum hydrocarbons. It is hypothesized that petroleum products were used to facilitate burning combustible waste. Soil sampling showed elevated total petroleum hydrocarbons. The qualitative risk was determined to be low. This site is recommended as a No Action site.

NRF-68 is an area that has been used for vehicle parking and construction pipe staging and cutting operations. This site was erroneously identified as a corrosion area. Soil sampling showed detectable total petroleum hydrocarbons in the area. Small amounts of chlorobenzene were also detected in the soil. The qualitative risk was determined to be low. This site is recommended as a No Action site.

Operable Unit 8-03. This unit consists of eight miscellaneous sites that were initially designated as Track 1 high priority sites. Each site was evaluated in a Track 1 investigation. Five sites are recommended by the agencies as No Action sites, and three are recommended as No Further Action sites. Those sites that are recommended as No Action or No Further Action are identified below.

Operable Unit 8-03
- NRF-10, Sand Blasting Slag Trench
- NRF-15, S1W Acid Spill Area
- NRF-18, S1W Spray Ponds
- NRF-20, A1W Acid Spill Area
- NRF-22, A1W Painting Locker French Drain
- NRF-23, Sewage Lagoons
- NRF-45, Site Incinerator
- NRF-56, Degreasing Facility

NRF-10 is an area where sandblast grit from paint removal operations in the 1950s was deposited. The sandblast grit was removed in 1990. Verification sampling performed in 1991 showed elevated levels of several metals in the soil. Arsenic, chromium, and lead were detected at elevated concentrations. A Track 1 risk assessment was performed that calculated risk-based soil concentrations for the residential and occupational scenarios. Although chromium and arsenic were detected in individual samples above risk-based soil concentrations, the risk assessment used very conservative estimates and a risk management decision was made that actual risks are acceptable and no additional action is required. This site is recommended as a No Action site.

NRF-15 and 20 are acid spill areas. Elevated levels of metals are present at each site. NRF-20 included lead contaminated soil above recommended screening level for lead cleanup. A soil removal action was performed at NRF-20 after receiving public comment on the proposed action. The only contaminants remaining at elevated levels after the removal action are mercury and lead (which is now below the remediation goal of 400 ppm). Sampling at NRF-15 showed elevated levels of chromium, lead, mercury, and nickel. The concentrations at both sites were determined to be below risk-based concentrations. A qualitative risk assessment for each site was determined to be low. These sites are recommended as No Action sites.

NRF-18 is the S1W spray ponds. The ponds are large concrete structures that contained cooling water for plant operations. At one time, a chromium based corrosion exhibitor was used in the water. Leakage and overspray from the ponds caused elevated chromium concentration in the surrounding soil. The risk assessment evaluation assumed the spray ponds would remain in place limiting exposure to the soil below the basins if any contamination was present. The

resulting qualitative risk assessment showed a low risk, but additional evaluation of the groundwater pathway was considered appropriate. The hydrogeologic study performed for the Comprehensive RI/FS concluded no significant impact to the groundwater from the spray ponds. This site is recommended as a No Further Action site.

NRF-22 is the location of a former french drain that may have received paints, solvents, and possibly mercury. A removal action was performed after receiving public comment on the proposed action. Sampling performed after the removal action showed elevated levels of lead and mercury remained. The excavated hole was 12 feet deep and was grouted to the surface eliminating all exposure pathways. The qualitative risk assessment after the removal action determined the risk to be low. Although no exposure route is present, a source remains at the site and No Further Action is recommended for the site.

NRF-23 is the current sewage lagoons. The lagoons are open rectangular ponds that measure 425 feet by 725 feet each. Sampling has shown elevated levels of metals and radionuclides and only trace amounts of organics. A Track 1 investigation recommended this site be included in the Comprehensive RI/FS primarily due to detectable amounts of radionuclides. The risk assessment results are shown on Table 5 at the end of this section. The potential contaminants of concern included arsenic, mercury, and cesium-137. The risk assessment evaluation for a future resident assumed an institutional control period of 100 years. The risk assessment used very conservative estimates and a risk management decision was made that the actual risks are acceptable and considerably lower than calculated so that no additional action is required. The hydrogeologic study showed that the lagoons have had and will continue to have a minimal effect on the aquifer. This site is recommended as a No Further Action site.

NRF-45 is the former location of an incinerator used to burn outdated documents. The incinerator was used at this location from 1985 to 1992. Barium, silver, and zinc were detected at elevated levels during sampling of the ash from the incinerator. The concentrations were determined to be below risk-based concentrations for the occupational and residential scenarios. The qualitative risk assessment for the site was determined to be low. This site is recommended as a No Action site.

NRF-56 is a former location of a pipe degreasing and pickling facility used between 1957 and 1961. The facility was replaced with a railroad car shed which was used as a pipe and welder training shop and is currently a records storage building. The original facility was likely completely removed when the railroad car shed was placed at this location. No hazardous source is present. This site is recommended as a No Action site.

Operable Unit 8-04. This unit consists of sixteen sites where spills, primarily petroleum products, have occurred. Each site was evaluated in a Track 1 investigation and is recommended as a No Action site.

NRF-28, 29, 31, 58, 65, 69, 70, 71, 72, 74, 75, 76, and 77 represent sites of past petroleum product releases. Most of the sites were oil release areas with the exception of NRF-69 (diesel) and NRF-71 (gasoline). These spill areas were generally cleaned up, but some residual contamination exists. The contaminants of concern include ***polychlorinated biphenyls*** (PCBs), total petroleum hydrocarbons,

polychlorinated biphenyl (PCB) - a high molecular-weight halogenated organic compound formerly used in dielectric fluids in transformers.

benzene, toluene, ethylbenzene, and xylene. Each contaminant was determined to be below risk-based concentrations. A qualitative risk assessment for each site was determined to be low. These sites area recommended as No Action sites.

NRF-44 is an area where wastewater was discharged between 1954 and 1959. The discharges included surface water runoff, steam condensate, cooling water, and water from an oil-water separator. No hazardous source is present. This site is recommended as a No Action site.

NRF-62 is the location of a past nitric acid spill. Around 1960, 2,460 gallons of acid was spilled. The area has since been disturbed by construction activity. No remaining hazardous source is present. This site is recommended as a No Action site.

NRF-73 is a former varnish tank. The varnish tank was used from 1970 to 1980 and was removed in 1991. Xylene was the primary component of the varnish. There was no evidence of tank leakage when the tank was removed in 1991. No hazardous source is present. This site is recommended as a No Action site.

Operable Unit 8-08. This unit includes eight sites suspected to have received radiological releases. Each site was evaluated during the Comprehensive RI/FS and risk assessments were performed using sampling data or estimated contaminant concentrations from sampling performed at similar sites. The risk assessments used very conservative assumptions and a risk management decision was made that the calculated risks are acceptable. Table 5 shows the calculated risks at each site for the hypothetical future 100-year residential scenario. A No Further Action recommendation is made by the agencies for five of these sites based on anticipated institutional control for 100 years and acceptable estimated risks to the future 100-year resident. In addition, three sites are recommended as No Action sites because the source present shows an acceptable risk for both current and future scenarios. Those sites that are recommended as No Action or No Further Action are identified below.

NRF-02 is a pond area that was connected to the industrial waste ditch system. The exterior industrial waste ditch (Operable Unit 8-07) was evaluated in a previous RI/FS and a no action Record of Decision was signed for the unit. Low-levels of radioactivity and slightly elevated levels of metals were detected in the pond. The pond was estimated to have been used from 1959 to 1985. The pond became contaminated with very low levels of radioactivity when water with trace amounts of cobalt-60 and cesium-137 was released to the ditch in the late 1960s. Accumulation of radioactivity in the ditch sediments produced slightly elevated levels, but below remediation goals. This site is recommended as a No Further Action site.

NRF-13 is the location of a temporary radioactive discharge pit. A one-time release of 28,000 gallons of an oily radioactive effluent was made to the pit in 1956. The bottom of the pit was filled with sand and gravel to allow percolation of the liquid. The pit was later completely filled in with excavated soil. Sampling performed in 1991 in the estimated location of the pit showed very small amounts of cobalt-60 and cesium-137 and slightly elevated amounts of arsenic. The primary potential contaminant of concern is cesium-137, but it was detected below background level and well below remediation goals. This site is recommended as a No Action site.

Operable Unit 8-04
- NRF-28, A1W Transformer Yard
- NRF-29, S5G Oily Waste Spill
- NRF-31, A1W Oily Waste Spill
- NRF-44, S1W Industrial Wastewater Spill Area
- NRF-58, S1W Old Fuel Oil Tank Spill
- NRF-62, ECF Acid Spill Area
- NRF-65, Southeast Corner Oil Spill
- NRF-69, Plant Service Underground Storage Tank (UST) Diesel Spill
- NRF-70, Boiler House Fuel Oil Release
- NRF-71, Plant Service UST Gasoline Spill
- NRF-72, NRF Waste Oil Tank
- NRF-73, NRF Plant Services Varnish Tank
- NRF-74, Abandoned UST's Between the NRF Security Fences
- NRF-75, Fuel Oil Revetment Oil Releases
- NRF-76, Vehicle Barrier Removal
- NRF-77, A1W Fuel Oil Revetment Oil Releases

Operable Unit 8-08
- NRF-02, Old Ditch Surge Pond
- NRF-13, S1W Temporary Leaching Pit
- NRF-16, Radiography Collection Tanks
- NRF-32, S5G Basin Sludge Disposal Bed
- NRF-43, Seepage Basin Pumpout Area
- NRF-66, Hot Storage Pit
- NRF-79, ECF Water Pit Release
- NRF-81, A1W Processing Building Area Soil

NRF-16 is the radiography building collection tank area. The building was originally a decontamination building used for cleaning radioactive equipment. The decontamination solutions were sent to two underground tanks. These tanks were used from 1954 to 1960. Adjacent to the building was a concrete pad that was used as a radioactive material storage area. The concrete pad was removed in 1979. The tanks were removed in 1993. There was no indication of leakage from the tanks. Elevated levels of radionuclides were detected in the soil near the tanks and concrete pad from past spills that occurred in the area. Sampling performed during the Comprehensive RI/FS showed radioactivity levels below remediation goals. This site is recommended as a No Further Action site.

NRF-32 is an area where sludge from a cleaning of the S5G basin was disposed. The sludge may have contained small amounts of radioactivity. The estimated maximum volume of sludge disposed to the area is 3,000 cubic feet. Sampling performed during the Comprehensive RI/FS did not show any elevated levels of radioactivity. Arsenic was detected at a slightly elevated level. No contaminants were detected above remediation goals. This site is recommended as a No Action site.

NRF-43 represents an area where the contents of NRF-21 (Old Sewage Basin) were pumped out. NRF-21 was a sewage basin that was pumped out to NRF-43 in 1958. Past sampling has detected some radioactivity in the pump out area. Arsenic and cesium-137 were detected at slightly elevated levels during sampling performed during the Comprehensive RI/FS. Plutonium-239 and carbon-14 were also detected during RI/FS sampling. The risk assessment evaluation showed an acceptable risk. This site is recommended as a No Further Action site.

NRF-66 is an area where a tanker truck collected radioactive liquid waste for transportation to other INEEL facilities for processing. Spills reportedly occurred in this area. Contaminated soil was removed from the area in 1980. Sampling during the Comprehensive RI/FS showed slightly elevated amounts of cesium-137 that were well below remediation goals. This site is recommended as a No Further Action site.

NRF-79 is a past water release from the Expended Core Facility water pits. Approximately 62,500 gallons of water is estimated to have leaked in 1991 from the pits. The release was estimated to have been 30 feet below ground surface. The water contained detectable amounts of radionuclides. A risk assessment was performed assuming all the water migrated directly to the groundwater and was available for domestic use. The risk assessment evaluation showed an acceptable risk. This site is recommended as a No Action site.

NRF-81 is an area around a radioactive processing building where known spills have occurred in the past. Typically, these spills were cleaned up to the maximum extent possible at the time. Cesium-137 and cobalt-60 were the only radionuclides detected at elevated levels during past sampling. This site is recommended as a No Further Action site.

Table 5. Risk Assessment Summary for Proposed 8-08 No Action and No Further Action Areas

Site	Residential Scenario[a]	
	Total Cancer Risk	Hazard Index
• Sewage Lagoons (8-03-23)	1 in 10,000	6.6[b]
• Old Ditch Surge Pond (8-08-02)	6 in 100,000	0.2
• S1W Temporary Leaching Pit (8-08-13)	NA[c]	NA[c]
• Radiography Building Collection Tanks (8-08-16)	1 in 10,000	0.2
• S5G Basin Sludge Disposal Bed (8-08-32)	3 in 100,000	0.1
• Seepage Basin Pumpout Area (8-08-43)	4 in 100,000	0.1
• Hot Storage Pit (8-08-66)	2 in 1,000,000	NA
• ECF Water Pit Release (8-08-79)	8 in 1,000,000	NA
• A1W Processing Building Area Soil (8-08-81)	1 in 100,000	NA

(a) The risks shown are for the 100-year future residential scenario which was determined to be the most likely time frame before any residence would ever be established in the vicinity of the Naval Reactors Facility.
(b) The Hazard Index at this site was due to mercury. A risk management decision was made by the agencies that this constituent was not a contaminant of concern because of the very conservative estimates used in the risk assessments. See previous discussion of mercury earlier in the text.
(c) No exposure pathways exist to calculate a risk.

Operable Unit 8-09. This unit consists of the interior industrial waste ditch system. The interior waste ditch system is comprised of a network of culverts, pipes, and uncovered drainage ditches with a combined length of 23,000 feet. The system collected discharges from prototype operations, support operational activity, and storm water. The interior waste ditch has been used since 1953. Various modifications to the ditch system have been made throughout the years. The ditch may have received small amounts of hazardous constituents from cooling systems, photographic operation, and laboratory operations. No hazardous constituents have been discharged since 1985. Contaminants of concern included various metals, organics, and radionuclides (cesium-137 and cobalt-60). A Track 2 assessment was performed on this unit. The calculated risks were within the target risk range and are considered by the agencies to be acceptable and No Action is recommended for this site.

Operable Unit 8-09
- Interior Industrial Waste Ditch

Unit 82 (New Site). This site was a new area identified after the Comprehensive Remedial Investigation was completed. This unit consists of the soil above an underground storage tank vault. Currently, the tank and it's contents are scheduled to be removed under other regulatory actions. One spill was known to have occurred at the area in 1972. The spill was cleaned up to the standards at that time and additional construction has occurred in the area. Slightly elevated amounts of radioactivity were reported after the clean up was performed in 1972. Additional clean up was performed in 1977. The remaining radioactivity is below remediation goals. The qualitative risk was determined to be low. This site is recommended as a No Further Action site.

Completed Investigations

Several sites were evaluated under previous investigations and included in a Record of Decision issued in 1994. These sites were included in the Comprehensive RI/FS as part of the hydrogeologic study, cumulative risk assessment, and ecological risk assessment. The conclusion in the Comprehensive RI/FS was that the actions identified in the Record of Decision for these sites are protective of human health and the environment. The following paragraphs describe the selected remedies for these sites.

Operable Unit 8-07
- Industrial Waste Ditch

Operable Unit 8-07. This site is an industrial waste ditch that received and continues to receive discharges from various facilities at the Naval Reactors Facility. A remedial investigation was performed for this site. The selected remedy for this site was No Action. The Comprehensive RI/FS supports this decision.

Operable Unit 8-05
- NRF-01, Field Area North of S1W
- NRF-51, West Refuge Pit #4
- NRF-59, Original S1W Refuse Pit

Operable Unit 8-06
- NRF-35, Lagoon Landfill #1
- NRF-36, Lagoon Landfill #2
- NRF-48, West Refuge Pit #1
- NRF-49, West Refuge Pit #2
- NRF-50, West Refuge Pit #3
- NRF-53, East Refuge Pit and Trenching Area

Operable Unit 8-05/8-06. These operable units represent nine sites that were past landfill areas or suspected landfill areas. Six of the sites, which include NRF-35, NRF-36, NRF-48, NRF-49, NRF-50, and NRF-59, had a selected remedy of No Action because either a source was not present or the source represented an acceptable risk. A Presumptive Remedy for CERCLA Municipal Landfills was selected for the remaining three sites: NRF-1, NRF-51, and NRF-53. The remedy included containment with a native soil cover, soil gas monitoring, groundwater monitoring, periodic inspection and maintenance, and maintaining institutional controls. NRF-1, NRF-51, and NRF-53 will be included in the CERCLA 5-year review to ensure the selected remedies remain protective of the environment. The Comprehensive RI/FS supports the decisions made for Operable Units 8-05 and 8-06.

Public Involvement Activities

After you review this plan, you are encouraged to contact representatives of the DOE, INEEL Community Relations Plan office, State of Idaho, or Region 10 of the EPA. You may wish to ask questions, request a briefing, or seek additional background information regarding this proposed plan.

A public meeting will be held at the following locations. From 6:30 to 7 p.m., representatives from the agencies will be available to informally discuss any concerns and issues related to this proposed plan before the meeting begins. At 7 p.m., there will be a presentation by the agencies, followed by a question and answer session and an opportunity to provide written and/or oral comments. **A court reporter will record public comments received and will prepare a transcript of the public meetings.** Transcripts from all three public meetings will be available to the public in the Administrative Record Section (under Operable Unit 8-08) of the INEEL Information Repositories listed on page 19.

Boise	**Moscow**	**Idaho Falls**
Tuesday, January 20	Wednesday, January 21	Thursday, January 22
Borah High School Library	University Inn	Shilo Inn

Comments continued. Attach additional pages if necessary.

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What's Your Opinion?

The agencies want and need to hear from you to effectively decide what action to take at the Naval Reactors Facility.*

Comments:

(Continued on reverse)

** If you want a copy of the Record of Decision and Responsiveness Summary, make sure your mailing label shown below is correct.*

Idaho National Engineering & Environmental Laboratory

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